

Guidelines for the Use of Socioeconomic Analysis

Guidelines for the use of the document, Socioeconomic Impact analysis of Marine Reserve Alternatives for the Channel Islands National Marine Sanctuary (Leeworthy and Wiley, 2002), while participating in the Channel Islands National Marine Sanctuary Marine Reserves Monitoring Workshop

The following guidelines are for the purpose of assisting workshop participants in each session to identify and use the appropriate sections of Leeworthy and Wiley (2002) (hereafter, “the analysis”) while participating in the workshop. It is not intended as a substitute or summary of the analysis, merely as a group-by-group guide for using the analysis in the workshop.

Generally, there are several sections of the analysis that would be appropriate for each group. They are listed below in the order they appear in the analysis.

Group S1a. Catch, Value, and Edge Effect (Commercial Fishing)

Introduction

- *Potential Benefits.* On page 4, a general discussion is made of benefits to commercial fishermen including long-term increases in aggregate harvests, consumer’s surplus and economic rents in the case where marine reserves result in benefits to surrounding unprotected sites.
- *Potential Costs.* On page 5, a reference is made to the circumstances under which commercial fisheries might suffer costs from marine reserves, including decreases in aggregate harvest and consumers’ surplus.

Chapter 1

- A baseline socioeconomic profile is provided on pages 11-22, including an explanation of the economic impact model, which begins with ex-vessel value (page 12).
- On page 13 a table showing ex-vessel value for the study area is presented by species for 1999 and the average of 1996 through 1999.
- The relative supply of selected CINMS commercial species is given on page 21.

Chapter 2

- Step 1 Analysis (*The sum of activities that are impacted by the various proposed marine reserve alternatives and the translation of these activities into the socioeconomic measures via the models outlined in chapter 1*) for commercial fishing by alternative (pages 39-51) including:
 - Impact on ex-vessel value by species group
 - Impact on ex-vessel value by port
- Summary and comparative impacts of alternatives (pages 51-55)

Chapter 3

- Discussion of issues, mitigating and theoretical literature that may provide some guidance in interpreting or understanding how the factors interact and the qualitative direction of outcomes under various conditions, including:
 - Current status of exploited fish stocks (pages 71-72)
 - Replenishment effect/stock effects (page 72)

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- Substitution/relocation (page 72)
 - Crowding/congestion (page 73)
 - Economic conditions and other outside forces and internal forces (page 75)
 - Pelagic or highly Migratory Species
- Step 2 Analysis (*Examination of the questions: (1) Are step 1 estimates real (Under what conditions and time frames might they be underestimates or overestimates of impact of costs or might short-term costs turn into long-term benefits)? (2) Once the benefits side of the equation has been examined, can we say anything about **net** benefits or costs*) for commercial fishing by alternative (pages 78-83) including:
 - Summary of impacts relative to Step 1 Analysis (page 80)
 - Step 2 analysis by alternative (page 81-83)

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Group S1b. Economic and Social (Commercial Fishing)

Introduction

- *Potential Benefits.* On page 4, a general discussion is made of benefits to commercial fishermen including long-term increases in secondary output/sales, income, jobs and tax revenues in local economies the case where marine reserves result in benefits to surrounding unprotected sites.
- *Potential Costs.* On page 5, a reference is made to a study in which the circumstances under which commercial fisheries might suffer costs from marine reserves, including secondary losses in output/sales, income, jobs and tax revenues in local economies (through the multiplier process), increased cost of harvesting resulting in lost income, overcrowding, user conflicts, possible over fishing or habitat destruction in remaining open areas due to displacement, and social disruptions from losses in income and jobs.

Chapter 1

- A baseline socioeconomic profile is provided on pages 11-22, including:
 - Baseline 1996-1999 economic impacts (page 14-15)
 - Socioeconomic Profiles of fishermen (page 15-20)
 - Dependency on fishing (page 16, 18)
 - Comparative profiles of fishermen (page 19)

Chapter 2

- Step 1 Analysis (*The sum of activities that are impacted by the various proposed marine reserve alternatives and the translation of these activities into the socioeconomic measures via the models outlined in chapter 1*) for commercial fishing by alternative (pages 39-51) including:
 - Impact on total income by county
 - Impact on total employment by county
- Summary and comparative impacts of alternatives
- Summary of income to individual fishermen (pages 53-55)

Chapter 3

- Discussion of issues, mitigating and theoretical literature that may provide some guidance in interpreting or understanding how the factors interact and the qualitative direction of outcomes under various conditions, including:
 - Current status of exploited fish stocks (pages 71-72)
 - Replenishment effect/stock effects (page 72)
 - Substitution/relocation (page 72)
 - Crowding/congestion (page 73)
 - Economic conditions and other outside forces and internal forces (page 75)
 - Pelagic or highly Migratory Species

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- Step 2 Analysis (*Examination of the questions: (1) Are step 1 estimates real (Under what conditions and time frames might they be underestimates or overestimates of impact of costs or might short-term costs turn into long-term benefits)? (2) Once the benefits side of the equation has been examined, can we say anything about **net** benefits or costs*) for commercial fishing by alternative (pages 78-83) including:
 - Summary of impacts relative to Step 1 Analysis (page 80)
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Group S2a. Use, Catch and Edge Effects (Recreational Fishing and Consumptive Diving)

Introduction

- *Potential Benefits.* On page 4, a general discussion is made of the potential for marine reserves to result in benefits to surrounding unprotected sites, i.e., increases in biomass and aggregate harvest. In this case the recreational fishermen and consumptive divers will benefit in the form of increased quality of the experience including the number and size of catch.
- *Potential Costs.* On page 5, a reference is made to a study in which the circumstances under which recreational fishing and consumptive diving may suffer costs from marine reserves, including losses in consumers' surplus and economic rents.

Chapter 1

- Baseline for the recreation industry is provided on pages 22-31, including
 - Total number of fishing trips (page 23)
 - Trends in catch and top species (page 24)
 - The economic impact model explanation (which begins with use) (page 25)
 - Baseline use of the study area by activity (page 25)
 - Economic parameters (consumers' surplus) (page 30)

Chapter 2

- Step 1 Analysis (*The sum of activities that are impacted by the various proposed marine reserve alternatives and the translation of these activities into the socioeconomic measures via the models outlined in chapter 1*) for the recreation industry by alternative (pages 56-70) including:
 - A summary broken out by state and federal waters
 - Step 1 analysis – total – by activity (including use and value)
 - Step 1 analysis – state waters – by activity (including use and value)
 - Step 1 analysis – Federal waters – by activity (including use and value)
- Summary of impacts on consumptive recreation (page 69)

Chapter 3

- Discussion of issues, mitigating and theoretical literature that may provide some guidance in interpreting or understanding how the factors interact and the qualitative direction of outcomes under various conditions, including:
 - Current status of exploited fish stocks (pages 71-72)
 - Replenishment effect/stock effects (page 72)
 - Substitution/relocation (page 72)
 - Crowding/congestion (page 73)

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- Economic conditions and other outside forces and internal forces (page 75)
 - Pelagic or highly Migratory Species
- Step 2 Analysis (*Examination of the questions: (1) Are step 1 estimates real (Under what conditions and time frames might they be underestimates or overestimates of impact of costs or might short-term costs turn into long-term benefits)? (2) Once the benefits side of the equation has been examined, can we say anything about **net** benefits or costs*) for recreation by alternative (pages 84-88) including:
- Summary of impacts relative to the step 1 Analysis (page 85)

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Group S2b. Economic and Social (Recreational Fishing and Consumptive Diving)

Introduction

- *Potential Benefits.* On page 4, a general discussion is made of the potential for marine reserves to result in benefits to surrounding unprotected sites, i.e., increases in biomass and aggregate harvest. In this case the recreational fishermen and consumptive divers, and supporting industries, will be the beneficiaries. These benefits will take the form of long-term increases in sales and income to businesses that directly provide goods and services to recreational fishermen and consumptive divers, long-term increases in secondary output/sales, income, jobs and tax revenues in local economies.
- *Potential Costs.* On page 5, a reference is made to a study in which the circumstances under which recreational fishing and consumptive diving may suffer costs from marine reserves, including long-term decreases in sales and income to businesses that directly provide goods and services to recreational fishermen and consumptive divers, long-term decreases in secondary output/sales, income, jobs and tax revenues in local economies.

Chapter 1

- Baseline for the recreation industry is provided on pages 22-31, including
 - The economic impact model explanation (which begins with use) (page 25)
 - The following measures are provided by activity: number of operators, total person-days, total revenue, total cost, and total profit (page 26)
 - Expenditure profiles (page 27)
 - Description of the ethnographic data survey (page 29)
 - Summary of baseline consumptive recreation (page 30)

Chapter 2

- Step 1 Analysis (*The sum of activities that are impacted by the various proposed marine reserve alternatives and the translation of these activities into the socioeconomic measures via the models outlined in chapter 1*) for the recreation industry by alternative (pages 56-70) including:
 - A summary broken out by state and federal waters
 - Step 1 analysis – total – by activity (including market impacts)
 - Step 1 analysis – state waters– by activity (including market impacts)
 - Step 1 analysis – Federal waters – by activity (including market impacts)
- Summary of impacts on consumptive recreation (page 69)
- Aggregate consumptive impacts (page 70)
- Habitat protection per dollar of impact on income (page 70)

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Chapter 3

- Discussion of issues, mitigating and theoretical literature that may provide some guidance in interpreting or understanding how the factors interact and the qualitative direction of outcomes under various conditions, including:
 - Current status of exploited fish stocks (pages 71-72)
 - Replenishment effect/stock effects (page 72)
 - Substitution/relocation (page 72)
 - Crowding/congestion (page 73)
 - Economic conditions and other outside forces and internal forces (page 75)
 - Pelagic or highly Migratory Species
- Step 2 Analysis (*Examination of the questions: (1) Are step 1 estimates real (Under what conditions and time frames might they be underestimates or overestimates of impact of costs or might short-term costs turn into long-term benefits)? (2) Once the benefits side of the equation has been examined, can we say anything about **net** benefits or costs*) for recreation by alternative (pages 84-88) including:
- Summary of impacts relative to the step 1 Analysis (page 85)

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Group S3a. Use/Use in Marine Reserves (Recreational Non-consumptive Users)

Introduction

- *Potential Benefits.* On page 3, a general discussion is made of the potential for marine reserves to result in benefits this group, as a result of increased quality and reduced conflicts with other users. This would be expected to increase net user value per unit of use.

Chapter 1

- Baseline for the recreation industry is provided on pages 22-31, including
 - The economic impact model explanation (which begins with use) (page 25)
 - Baseline use of the study area by activity (page 25)
 - Summary of baseline non-consumptive recreation activity (page 31)

Chapter 3

- Discussion of the benefits non-consumptive users are expected to realize from the marine reserves (page 89)
- Baseline 1999 activity within each alternative and their corresponding economic impact (pages 91-100)
- A range of potential impacts using a range of quality increases and quality elasticities (page 91-100)
- Summary of economic impacts on recreation non-consumptive activities – Step 2 analysis (page 101)

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Group S3b. Economic and Social (Recreational Non-consumptive Users)

Introduction

- *Potential Benefits.* On page 3, a general discussion is made of the potential for marine reserves to result in benefits this group, as a result of increased quality and reduced conflicts with other users. This would result in increased sales and income to businesses that directly provide goods and services to non-consumptive users and long-term increases in secondary output/sales, income, jobs and tax revenues in local economies.

Chapter 1

- Baseline for the recreation industry is provided on pages 22-31, including
 - The economic impact model explanation (which begins with use) (page 25)
 - The following measures are provided by activity: number of operators, total person-days, total revenue, total cost, and total profit (page 26)
 - Expenditure profiles (page 27)
 - Description of the ethnographic data survey (page 29)
 - Summary of baseline consumptive recreation (page 30)

Chapter 3

- Discussion of the benefits non-consumptive users are expected to realize from the marine reserves (page 89)
- Baseline 1999 activity within each alternative and their corresponding economic impact (pages 91-100)
- A range of potential impacts using a range of quality increases and quality elasticities (page 91-100)
- Summary of economic impacts on recreation non-consumptive activities – Step 2 analysis (page 101)

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Group S4. Other Management Strategies and Regulations

Chapter 3

- A discussion of the way in which other regulations can work toward mitigating, offsetting, avoiding costs, or in increasing the costs. Assumptions that any changes in current activities are always losses doesn't take into account that the future path may be lower levels of current activity without the regulatory intervention (pages 73-75). The discussion includes the following:
 - The Marine Life Protection Act (page 74)
 - The Marine Life Management Act (page 74)
 - Existing area and temporal closures (page 75)
- Phasing of marine reserves (page 77)
- Commercial Fishing Summary of impacts relative to Step 1 Analysis (page 80)
- Recreation Summary of impacts relative to Step 1 Analysis (page 85)

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Group S5. Education and Research

Introduction

- *Potential Benefits.* On page 4 and 5, benefits to scientific and education values are identified and discussed.

Chapter 3

- Discussion of quality increases in marine reserves as they relate to the Florida Keys (page 73)
- Discussion and identification of benefits found in Sobel (1996) (page 107)